

AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 9, 13, 19, and 20 as indicated below.

A complete listing of all claims is presented below with insertions underlined (e.g., insertion), and deletions struckthrough or in double brackets (e.g., ~~deletion~~ or [[deletion]]):

1. (Currently Amended) A laser head adapted to irradiate an interaction region of an inhabitable structure with laser light to remove material from the structure, the laser head comprising:

a housing;

an anchoring mechanism reversably coupled to the housing and releasably affixed to the structure by vacuum pressure, the anchoring mechanism releasably holding the laser head at a selected position in relation to the structure;

a connector coupled to the housing and optically coupled to a laser generator, the connector adapted to transmit laser light from the laser generator;

a first optical element contained in the housing and optically coupled to the connector, the first optical element adapted to receive laser light from the connector and reflect the laser light from the connector through a first non-zero angle;

a second optical element contained in the housing and optically coupled to the first optical element, the second optical element adapted to receive laser light from the first optical element and reflect the laser light from the first optical element through a second non-zero angle; and

a containment plenum coupled to the housing, the containment plenum optically coupled to the second optical element to receive the laser light from the second optical element, the containment plenum adapted to confine the material and remove the material from the interaction region resulting from irradiating the structure with the laser light.

2. (Original) The laser head of Claim 1, wherein the first optical element comprises a first mirror and the second optical element comprises a second mirror.

3. (Original) The laser head of Claim 2, wherein the first mirror is mounted on a first adjustable assembly in the housing, whereby alignment of the laser light can be optimized by adjusting the first adjustable assembly.

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4. (Original) The laser head of Claim 2, wherein the second mirror is mounted on a second adjustable assembly in the housing, whereby alignment of the laser light can be optimized by adjusting the second adjustable assembly.

5. (Original) The laser head of Claim 2, wherein the first mirror has a curvature adapted to modify a beam profile of the laser light.

6. (Original) The laser head of Claim 2, wherein the second mirror has a curvature adapted to modify a beam profile of the laser light.

7. (Original) The laser head of Claim 1, wherein the first non-zero angle is approximately equal to the negative of the second non-zero angle.

8. (Original) The laser head of Claim 1, wherein the laser head further comprises a lens in the housing through which the laser light propagates.

9. (Currently Amended) The laser head of Claim [[7]]8, wherein the lens is mounted in an adjustable assembly in the housing, whereby alignment and focus of the laser light can be optimized by adjusting the assembly.

10. (Original) The laser head of Claim 1, wherein the laser head further comprises a lens mounted in the connector, the lens collimating the laser light.

11. (Original) The laser head of Claim 1, wherein the connector is optically coupled to the laser generator via an optical fiber.

12. (Original) The laser head of Claim 1, wherein the laser head further comprises a handle adapted to facilitate transporting and positioning the laser head at a selected location.

13. (Currently Amended) The laser head of Claim 1, wherein the laser head further comprises a coupler adapted to releasably couple the housing~~laser head~~ to ~~[[an]]the~~ anchoring mechanism.

14. (Original) The laser head of Claim 13, wherein the coupler comprises at least one recess adapted to be releasably coupled to a corresponding protrusion of the anchoring mechanism.

15. (Original) The laser head of Claim 13, wherein the coupler comprises at least one protrusion adapted to be releasably coupled to a corresponding recess of the anchoring mechanism.

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16. (Original) The laser head of Claim 13, wherein the coupler comprises at least one collar adapted to be releasably coupled to a corresponding rod of the anchoring mechanism at a plurality of locations along the rod.

17. (Original) The laser head of Claim 13, wherein the coupler comprises:
a first collar adapted to be releasably coupled to a first rod of the anchoring mechanism; and
a second collar adapted to be releasably coupled to a second rod of the anchoring mechanism.

18. (Original) The laser head of Claim 17, wherein the first collar is adapted to be detached from the first rod and the second collar is adapted to be rotatably coupled to the second rod.

19. (Currently Amended) A laser head adapted to irradiate an interaction region of an inhabitable structure with laser light to remove material from the structure, the laser head comprising:

means for connecting the laser head to a laser generator;

means for reversably affixing~~connecting~~ the laser head to ~~an anchoring mechanism~~the structure by vacuum pressure to releasably hold the laser head at a selected position in relation to the structure, wherein the affixing means is reversably coupled to other portions of the laser head;

means for receiving the laser light from the laser generator;

means for directing the laser light to the interaction region; and

means for confining the material and removing the material from the interaction region.

20. (Currently Amended) A method of irradiating an interaction region of an inhabitable structure with laser light to remove material from the structure, the method comprising:

connecting a laser head to a laser generator, the laser head comprising a housing and an anchoring mechanism reversably coupled to the housing;

reversably affixing the anchoring mechanism to the structure by vacuum pressure, thereby releasably positioning the laser head in a drilling position relative to the interaction region;

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receiving the laser light from the laser generator;
directing the laser light to the interaction region of the structure; and
confining the material and removing the material from the interaction region.